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average results of the author's observations extended only from the year 1815 to 1832, similar records of calculated averages are given down to the year 1841, and a comparison drawn with those of the former period. The author places the whole of these data in the hands of the Royal Society, for the purpose of being made the basis of future inquiry, in what he terms "the nascent science of Meteorology."

"Contributions to the Chemistry of the Urine; on the variations in the Alkaline and Earthy Phosphates in the healthy state, and on the Alkalescence of the Urine from fixed Alkali." By Henry Bence Jones, M.A. Cantab., Licentiate of the Royal College of Physicians.

The author, having observed that in some states of disease there occurs in the urine a great excess of the earthy phosphates, was induced to investigate the subject; and as a preliminary inquiry, to ascertain the variations in the amount of these phosphates at different times in the same person in a state of health, and to trace the causes which determine an excess or a deficiency of these salts in the urine; noting, at the same time, the variations in the quantity of the alkaline phosphates contained in it, with a view of discovering whether these variations are influenced by the same, or by different causes. The principal results to which his experiments have conducted him are the following. The quantity of the earthy phosphates in the urine voided soon after taking food is considerably greater than in that voided at other times; and this happens whether the meal consists of animal food or of bread only. After long fasting, the proportion of earthy phosphates is considerably diminished. On the other hand, the alkaline phosphates are present in greatest quantity when the food consists of bread alone: when meat alone is taken, the deficiency in those salts is still more marked than the excess in the former case. Exercise occasions no change in the quantity of the earthy phosphates, but causes an increase of nearly one-third in the amount of alkaline phosphates; but its influence is, on the whole, less than that of diet. The earthy phosphates are increased in quantity by chloride of calcium, sulphate of magnesia, and calcined magnesia taken into the stomach.

The author next examines the conditions in which the urine is alkaline, and which he considers to be of two kinds; the one, long known as *ammoniacal*, and arising from the presence of carbonate of ammonia; and the other, which has not hitherto been distinctly recognised, arising from fixed alkali, and appearing most frequently in urine secreted during a period of from two to four hours after breakfast, in persons suffering only from defective digestion. Under these circumstances, it may be, when voided, either turbid from amorphous sediment, or clear and alkaline when tested, or free from deposit and slightly acid. If in either of these last cases it be heated, an amorphous precipitate falls down, which is soluble in dilute hydrochloric acid, or in a solution of biphosphate of soda. Healthy urine may at any time be made to yield a precipitate of earthy phosphates by heat, even though it be acid, by having a portion of this

acid neutralised by any alkali, or by phosphate of soda, the fluid becoming more acid when boiled. A solution of earthy phosphates in biphosphate of soda also gives a precipitate on boiling, if some of its acid reaction is removed by any alkali. The fluid when boiled becomes more acid to test-paper, indicating the formation of a more basic earthy phosphate. A result precisely similar is obtained when common phosphate of soda, phosphate of lime, and a little biphosphate of soda exist together in solution; and by varying the quantities of each of these substances, the various phenomena which the urine occasionally presents may be imitated. The time at which the alkalescence of the urine from fixed alkali generally occurs, indicates the existence of some alkaline phosphate, or of some carbonated alkali in the food.

“On the Nerves of the Uterus.” By Thomas S. Beck, Esq. Communicated by Sir Benjamin C. Brodie, Bart., F.R.S.

The object of the author in this communication is to record the results of his dissections of the nerves of the uterus, both in the unimpregnated and gravid states, with a view to determine if any changes are observable in them in these two conditions. He enters minutely into the anatomical details of the formation of the great splanchnic nerve, the composition of the semilunar ganglion, and the distribution of the branches proceeding from it to the different abdominal viscera. His conclusions are, that while the ovaria derive their nerves from the renal, the fallopian tubes from the hypogastric, and the bladder, rectum and vagina from the pelvic plexus, the nerves supplying the uterus are continuations of the hypogastric plexus, and that they undergo, during pregnancy, no further change, either in size or position, except that which is the simple consequence of the enlargement of the organ over which they are distributed, and that they undergo no other change during a second pregnancy. He thinks it probable, moreover, that the vessels of the uterus do not decrease in size after parturition, but are only contracted in their cavity. He notices several points relating to these subjects, which are still open to further investigation. The paper is accompanied by highly finished drawings of the appearance of the dissected parts.

“On a Peculiar Source of Deterioration of the Magnetic Powers of Steel Bars.” By William Sturgeon, Esq. Communicated by S. Hunter Christie, Esq., Sec. R.S.

The author concludes, from various experiments on the changes in the magnetic force of steel magnets produced by subjecting them to blows with a wooden mallet, or other modes of creating tremors or vibrations among their particles, that the most apparently trifling mechanical agitation is sufficient to occasion a considerable diminution of magnetic power; that this loss, when it has taken place from such a cause, is permanent; and that in every case, after reaching a certain point, it attains its maximum, a fact which implies, in every magnet, the possession of a specific retentive force, of which it cannot be deprived by any further mechanical commotion of its parti-